

12

# EUROPEAN PATENT APPLICATION

21 Application number: 89304035.2

51 Int. Cl.4: B65D 75/58 , B65D 33/36

22 Date of filing: 24.04.89

30 Priority: 16.05.88 JP 64217/88 U  
06.01.89 JP 310/89 U

43 Date of publication of application:  
13.12.89 Bulletin 89/50

64 Designated Contracting States:  
AT BE CH DE ES FR GB GR IT LI LU NL SE

71 Applicant: KABUSHIKI KAISHA HOSOKAWA  
YOKO  
No. 11-5, Niban-cho Chiyoda-Ku  
Tokyo-to(JP)

72 Inventor: Oyama, Akira  
No. 9-1, Odai 1-chome Miyamae-ku  
Kawasaki-shi Kanagawa-ken(JP)  
Inventor: Niwa, Susumu  
No. 1-15-603 Sakae-machi 3-chome  
Asaka-shi Saitama-ken(JP)  
Inventor: Moteki, Yoshiji  
No. 121-2, Sakae 5-chome Ina-machi  
Kitaadachi-gun Saitama-ken(JP)  
Inventor: Ichikawa, Toru  
No. 3-19-2-106, Waseda  
Misato-shi Saitama-ken(JP)

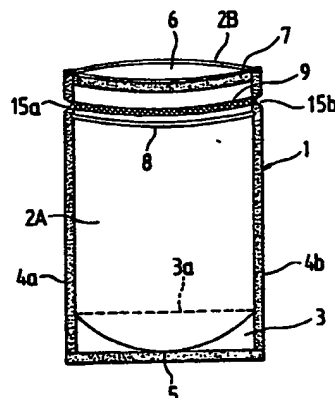
74 Representative: Rackham, Stephen Neil et al  
GILL JENNINGS & EVERY 53-64 Chancery  
Lane  
London WC2A 1HN(GB)

94 Closable pouch.

97 A reclosable pouch (1) has a zipper (8) for sealingly closing an opening (6) of the pouch (1). The pouch (1) has confronting front (2A) and rear (2B) sheets heat sealed together at four side edge portions (4, 5, 7). The zipper (8) is provided at an inner surface (14) of the front (2A) and rear (2B) sheets and extends parallel to the upper heat sealed edge portion (7). Further a surface roughened zone (9) is formed on the front (2A) and rear (2B) sheets. The surface roughening zone (9) is positioned between the upper heat sealed edge (7) portion and the zipper (8), and extends parallel to them, between a notch (15) on one side (4a) and another notch (15) on the other side (4b) heat sealed edge portion. The surface roughened zone (9) provides mechanical strength lower than the remainder of the sheets (2A & 2B). Therefore, the pouch is easily tearable along

the surface roughened zone (9) with using tools and without damaging the zipper (8).

FIG. 1



## CLOSABLE POUCH

The present invention relates to a closable pouch for containing a material such as a retort food.

A closable pouch formed with a zipper or fastener means is known. The pouch has a generally rectangular shape, and has heat sealed portions at both side edge portions, and a top opening portion whose inner surfaces are formed with the zipper means. At the top edge portion of the pouch, a top heat sealed portion is formed for sealing the top opening before use. For opening the pouch, a portion between the top sealed edge portion and the zipper portion is manually cut to remove the top edge portion. If any material such as retort food remains within the pouch, the zipper portions are pressed together to close the cut opening.

Generally, the pouch for containing the retort food requires an oxygen blocking function and thermal resistivity. For this, the pouch is formed of a laminated film consisting of an aluminium foil and a non-oriented polypropylene, or the lamination of an oriented nylon film and a non-oriented polypropylene film. Such laminated films have sufficient strength, and therefore, large force is required for manually tearing the pouch in order to discharge material packed therein.

To take out the packed material, firstly, a user has to remove the top heat sealed portion, and then has to open the zipper means. However, since the pouch is formed of such a high strength laminated film a cutter such as a knife or a pair of scissors must be used for removing the top sealed portion. This is troublesome, if there is no cutter readily available.

For facilitating the removal of the top heat sealed portion of the pouch, a tape formed of an oriented plastics material has been proposed which is provided at a position between the top heat sealed portion and the zipper portion. The oriented tape may be easily cut in one direction, so that the tape portion may presumably undergo smooth cutting for removing the top heat sealed portion. However, according to this proposal, productivity of such pouches is lowered since the tape has to be stuck onto that portion, and the resultant pouch becomes costly. Further, there is a likelihood that the cutting line in the tape may be curved, and the zipper portion may be disadvantageously cut during the manual cutting of the tape.

According to this invention a closable pouch comprising:

a rectangular front laminated sheet,  
a rectangular rear laminated sheet, the front and rear laminated sheets having confronting side edge portions heat sealed together and confronting up-

per edge portions heat sealed together, and zipper means extending parallel to the upper heat sealed edge portion for selectively opening and closing an upper opening defined after removal of the upper heat sealed edge portions, the zipper means defining an effective zipper portion along its length;

is characterised in that:

at least one notch is formed in each of the side heat sealed edge portions; and in that a surface roughened zone is formed on the front and rear laminated sheets, extends between the notches and is positioned between the upper heat sealed edge portion and the zipper means.

An advantage of the present invention is the provision of a pouch in which the top heat sealed portion can be easily removed without using a cutter, and without damage to the zipper means. Preferably the opening length of the zipper means is smaller than the transverse length of the pouch.

Since the surface roughened zone is provided at a position between the upper heat sealed edge portion and the zipper means, and since the surface roughened zone is contiguous with the notches formed at the side heat sealed edge portions, when tearing the pouch at one of the notches, the pouch is easily tearable along the surface roughened zone without any damage to the zipper means, and such tearing can be made without using any cutter.

Examples of pouches in accordance with this invention will now be described with reference to the accompanying drawings; in which:-

Figure 1 is a perspective view showing a first example of closable pouch before material injection;

Figure 2 is a cross-section showing a laminated film and a zipper means used in a pouch according to the first example;

Figure 3 is a perspective view showing a second example of closable pouch before material injection; and,

Figure 4 is a cross-section showing confronting laminated films of front and rear sheets of the pouch and a zipper means according to the second example.

A first example according to this invention is shown in Figures 1 and 2. A closable pouch 1 according to the first embodiment is of a self-standing type pouch for containing therein a material such as a retort food. The pouch 1 includes two rectangular laminated sheets 2A, 2B serving as front and rear walls, respectively and a bottom wall 3 formed also of a laminate sheet. Prior to the

material injection into the pouch 1, the bottom wall 3 is folded so that a folding line 3a is provided, which folding line 3a is positioned between the front and rear walls 2A and 2B.

Each confronting side edge portions of the front and rear walls 2A and 2B are heat sealed together for providing side heat sealed portions 4a and 4b. At the extreme edges of the side heat sealed portions 4a and 4b, V-notches 15a and 15b are formed. Further, the bottom wall 3 is heat sealed with bottom edge portions of the front and rear walls for forming a bottom heat sealed portion 5. Top edges of the front and rear walls 2A and 2B define a top opening 6 prior to the material injection. The top edges are heat sealed together after material injection for providing a top heat sealed portion 7.

At a position adjacent the top sealed portion 7, a zipper or fastener 8 is provided. The zipper 8 extends in transverse direction of the pouch, i.e., extends from one side heat sealed portion 4a to the other side sealed portion 4b in parallel with the top sealed portion 7. Further, a surface roughened zone 9 having a small width extends in parallel with the zipper 8 and at a position closer to the top heat sealed portion than the zipper 8. The surface roughened zone 9 extends between the V-notches 15a and 15b. Clearly these V-notches are positioned between the zipper 8 and the top heat sealed portion 6. The zipper 8 is provided at inner surfaces of the front and rear walls 2A and 2B. That is, the zipper 8 includes an engaging rib 8a integrally provided at the inner surface of one of the front and rear walls 2A and 2B, and an engaging groove (not shown) integrally provided at the inner surface of remaining one of the rear and the front walls 2B and 2A. The rib 8a is engageable with the engaging groove upon depression for packing a content and these are disengageable from each other upon application of force for discharging the content from the pouch. Alternatively, the rib and engaging groove are provided independent of the front and rear walls and the rib and the engaging groove are stuck to the walls as shown in Fig. 4.

Each of the front and rear sheet walls 2A and 2B is formed of the laminate film which includes an outer polyester film layer 10 having a thickness of 12 microns, an adhesive layer 11 formed on the layer 10, an aluminum layer or foil 12 having a thickness of 9 microns formed on the layer 11, a second adhesive layer 13 formed on the layer 12 and an inner cast polypropylene film layer 14 having a thickness of 60 microns formed on the layer 13. The rib 8a of the zipper 8 is integrally provided at the inner layer 14.

Further, the inner layer 14 is subjected to surface roughening treatment by an abrasive roller

(not shown) for forming the surface roughened zone 8 having the small width. The surface roughened zone 8 reduces mechanical strength of the laminate sheets 2A and 2B for facilitating cutting of the sheet therealong, yet maintaining sufficient strength and sealability, since the surface roughening treatment is effected only on the internal cast polypropylene layer 14. Alternatively, the surface roughened zone can be formed at the outer layer, i.e., at the polyester layer 10.

With the structure, in order to open the closable pouch 1 containing therein a retort food, tearing force is manually applied to one of the V-notches 15a and 15b so as to initiate tearing at the notch. This tearing force is propagated along the surface roughened zone 9 and the tearing reaches the other V-notch. In this tearing operation, the tear-cutting is not transmitted to the zipper portion 8, but the tearing is concentrated only along the surface roughened portion 9 positioned outside the zipper 8. Accordingly, the zipper portion 8 does not undergo any damage. Upon completion of the tearing, the top heat sealed portion 7 can be removed from the pouch 1. Thereafter, the zipper 8 is manually opened for taking out the content packed in the pouch 1. If the residual content is intended to be packed in the pouch 1, the zipper 8 is simply closed.

A second embodiment according to this invention will next be described with reference to Figs. 3 and 4, wherein like parts and components are designated by the same reference numerals and characters as those shown in Figs. 1 and 2. As shown in Fig. 4, a zipper or fastener 8' includes an engaging rib piece 8A stuck to an inner layer 14 of a front sheet wall 2A', and an engaging groove piece 8B stuck to an inner layer 14' of a rear sheet wall 2B'. The engaging rib piece 8A is provided with a rib 8a' which is engageable with an engaging groove 8b' provided at the engaging groove piece 8B. It goes without saying that such pieces 8A and 8B are available in the first embodiment.

According to the second embodiment, additional heat sealed portions 17a and 17b are formed. Each of the additional heat sealed portions 17a and 17b integrally join the front and rear walls 2A' and 2B' together at positions close to the side heat sealed portions 4a and 4b and close to the top heat sealed portion 7, so that parts of the rib 8a' and the engaging groove 8b' are also joined together. Therefore, a limited part of the zipper 8 having a length L functions as an effective zipper portion.

More specifically, the additional heat sealed portions 17a and 17b define slanting sealed edge lines 18a and 18b. Each of the sealed edge lines 18a and 18b extends between a point 19 and a point 20. The point 19 is on the side sealed edge portion 4 and is positioned more remote from the

top edge than the zipper 8, and the point 20 is positioned on the top heat sealed portion 7. Accordingly, each of the additional heat sealed portions has a triangular shape as shown, still providing an effective zipper portion having the length L at the non heat sealed parts. Such additional heat sealed portions are not necessarily provided symmetrically. Instead, the additional heat sealed portion can be provided at one confronting part of the front and the rear walls as far as the single additional heat sealed portion can provide the effective zipper portion having the length L.

In the second embodiment, the zipper 8 having effective length L is provided which length is smaller than the transverse length of the pouch, and the length L is controllable by controlling the area of the additional heat sealed portion. Therefore, the closing operation of the zipper can be easily achieved. Further, in case of retort process, generally, heat is applied to the pouch, and such heat may provide thermal deformation of the zipper 8 to thereby degrade engaging capability between the rib 8a and the groove 8b. However, in the second embodiment, since the effective zipper length L is smaller than the transversal length of the pouch, or the effective zipper length L is controllable, the thermal deformation or contraction does not severely affect the engaging capability of the zipper.

In view of the foregoing, according to the present invention, since at least one notch is formed at the side heat sealed portion, and since the surface roughened zone extends from the notch at a position outside the zipper means, the top heat sealed portion can be easily removed by manually cutting the pouch along the surface roughened zone without using any cutter. Further, since the cutting is achieved exclusively on the surface roughened zone, the zipper positioned adjacent to the top heat sealed portion is not damaged during removal of the top heat sealed portion. Therefore, after removal of the top heat sealed portion the zipper can provide its inherent opening and closing function.

Furthermore, in the second embodiment of this invention, since the effective zipper length is smaller than the transversal length of the pouch, closing operation of the zipper can be promptly achieved, and the inherent zipper operation can be provided even if a minute thermal deformation occurs at the zipper portion, since the thermal deformation does not severely affect the zipper or fastening function in the small length zipper (a small length member does provide a small length expansion or contraction).

## Claims

1. A closable pouch comprising:  
a rectangular front laminated sheet (2A),  
a rectangular rear laminated sheet (2B), the front and rear laminated sheets (2A & 2B) having confronting side edge portions (4a, 4b) heat sealed together and confronting upper edge portions (7) heat sealed together, and  
zipper means (8, 8') extending parallel to the upper heat sealed edge portion (7) for selectively opening and closing an upper opening defined after removal of the upper heat sealed edge portions (7), the zipper means (8, 8') defining an effective zipper portion along its length;  
characterised in that:  
at least one notch (15) is formed in each of the side heat sealed edge portions (4); and in that  
a surface roughened zone (9) is formed on the front and rear laminated sheets (2A & 2B), extends between the notches (15) and is positioned between the upper heat sealed edge portion (7) and the zipper means (8, 8').
2. A closable pouch according to claim 1, wherein the surface roughened zones (9) are formed on the inner surfaces of each laminated sheet (2A & 2B).
3. A closable pouch according to claim 1, wherein the surface roughened zones (9) are formed on the outer surfaces of each laminated sheet (2A & 2B).
4. A closable pouch according to any one of the preceding claims, further comprising an additional heat sealed portion (17) provided at an upper portion of the front and rear laminated sheets (2A, 2B) for reducing the effective zipper length of the zipper means (8, 8'), the additional heat sealed portion (17) occupying a heat sealing area which includes a part of the upper heat sealed edge (7) portion and a part of the zipper means (8, 8').
5. A closable pouch according to any one of the preceding claims, wherein each of the front and rear laminated sheets (2A & 2B) comprise a non-oriented polypropylene film layer and an aluminium foil layer.

Neu eingereicht / Newly filed  
Nouvellement déposé

FIG. 1

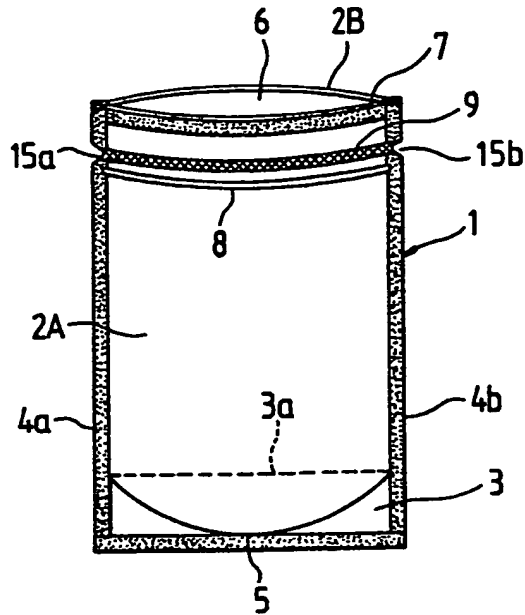


FIG. 2

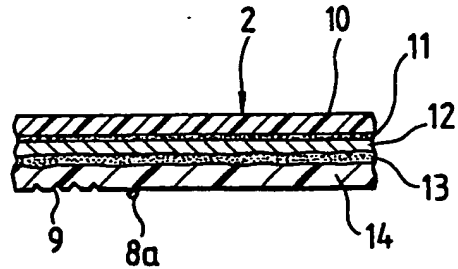


FIG. 3

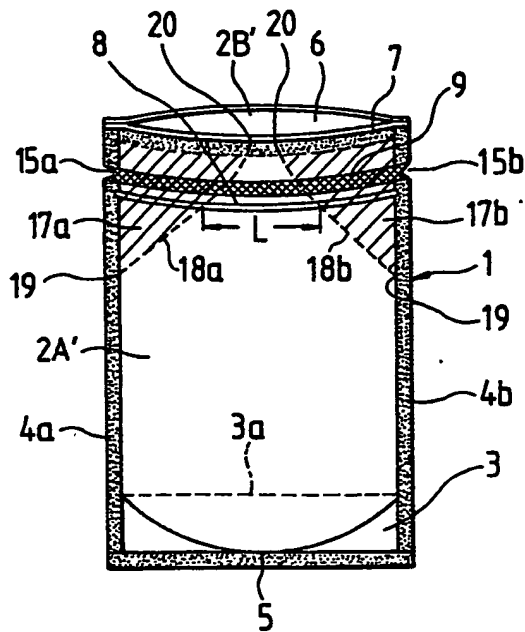
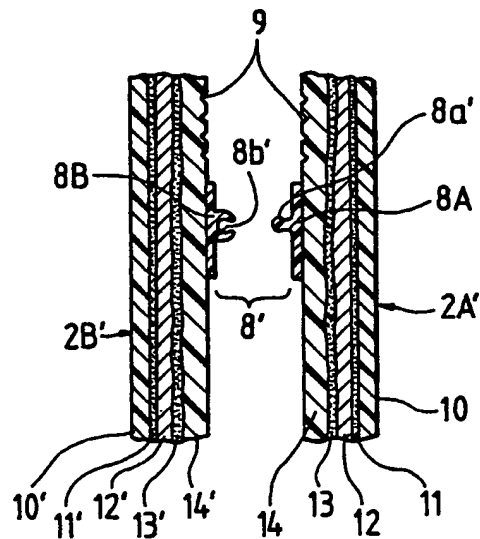


FIG. 4





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl. 4)
Y	US-A-3 625 270 (SKENDZIC) * Column 2, line 53 - column 3, line 12; figure 1 * ---	1-5	B 65 D 33/36 B 65 D 75/58
Y	US-A-4 543 279 (KAI) * Column 3, line 21 - column 4, line 19; figure 4 * ---	1-5	
A	US-A-3 768 725 (PILARO) * Figure 1; column 3, lines 63-67 * ---	1	
Y	US-A-3 913 789 (MILLER) * Column 2, lines 52-66; figure 3 * -----	4	
			TECHNICAL FIELDS SEARCHED (Int. Cl. 4)
			B 65 D B 65 B B 32 B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30-08-1989	Examiner CLARKE A.J.
<b>CATEGORY OF CITED DOCUMENTS</b>			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	